IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE

MCKESSON AUTOMATION, INC.,	)	
	)	
Plaintiff,	)	
	)	
v.	)	C.A. No. 06-028 (SLR-LPS)
	)	
SWISSLOG ITALIA S.P.A. and TRANSLOGIC CORPORATION,	)	
	)	
	)	
Defendants.	)	

DECLARATION OF BRYAN N. DEMATTEO
IN SUPPORT OF DEFENDANTS SWISSLOG ITALIA S.P.A.'S
AND TRANSLOGIC CORPORATION'S OPPOSITION TO
MCKESSON AUTOMATION INC.'S OPENING CLAIM CONSTRUCTION BRIEF

I, Bryan N. DeMatteo, declare as follows:

1. I am associated with the law firm Dickstein Shapiro Morin & Oshinsky LLP, counsel of record for Defendants Swisslog Italia S.p.A and Translogic Corporation (collectively "Defendants"). I make this declaration in support of Defendants Swisslog Italia's ("Swisslog") and Translogic Corporation's ("Translogic") Opposition to McKesson Automation Inc.'s Opening Claim Construction Brief. I have personal knowledge of the facts set forth herein, and if called to testify, could and would certify competently hereto.

2. Attached as Exhibit L is a true and correct copy of a Wikipedia.com entry for "Polar Coordinate System," downloaded on August 21, 2008.

3. Attached as Exhibit M is a true and correct copy of a pleading in this litigation entitled "Second Revised Joint Claim Construction Statement" dated September 2, 2008.

I declare under penalty of perjury that the foregoing is true and correct to the best of my information and belief. This declaration is executed this 5th day of September, 2008.

/s/ Bryan N. DeMatteo

____

Bryan N. DeMatteo

2476458

CERTIFICATE OF SERVICE

I, the undersigned, hereby certify that on September 5, 2008 I electronically filed the foregoing with the Clerk of the Court using CM/ECF which will send notification of such filing to the following:

Dale R. Dubé, Esquire
Blank Rome LLP

Additionally, I hereby certify that true and correct copies of the foregoing were caused to be served on September 5, 2008 upon the following individuals in the manner indicated

BY HAND DELIVERY
AND E-MAIL

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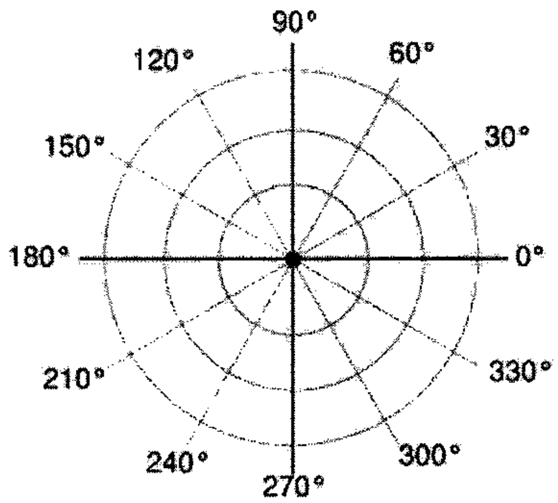
EXHIBIT L

Polar coordinate system

From Wikipedia, the free encyclopedia

(Redirected from Polar coordinates)

In mathematics, the **polar coordinate system** is a two-dimensional coordinate system in which each point on a plane is determined by an angle and a distance. The polar coordinate system is especially useful in situations where the relationship between two points is most easily expressed in terms of angles and distance; in the more familiar Cartesian or rectangular coordinate system, such a relationship can only be found through trigonometric formulation.



A polar grid with several angles labeled in degrees

As the coordinate system is two-dimensional, each point is determined by two polar coordinates: the radial coordinate and the angular coordinate. The radial coordinate (usually denoted as r) denotes the point's distance from a central point known as the *pole* (equivalent to the *origin* in the Cartesian system). The angular coordinate (also known as the polar angle or the azimuth angle, and usually denoted by θ or t) denotes the positive or anticlockwise (counterclockwise) angle required to reach the point from the 0° ray or *polar axis* (which is equivalent to the positive x-axis in the Cartesian coordinate plane).[1]

Contents

History

See also: History of trigonometric functions

The concepts of angle and radius were already used by ancient peoples of the 1st millennium BCE. The astronomer Hipparchus (190-120 BCE) created a table of chord functions giving the length of the chord for each angle, and there are references to his using polar coordinates in establishing stellar positions.[2] In *On Spirals*, Archimedes describes the Archimedean spiral, a function whose radius depends on the angle. The Greek work, however, did not extend to a full coordinate system.

There are various accounts of the introduction of polar coordinates as part of a formal coordinate system. The full history of the subject is described in Harvard professor Julian Lowell Coolidge's *Origin of Polar Coordinates*.[3] Grégoire de Saint-Vincent and Bonaventura Cavalieri independently introduced the concepts in the mid-seventeenth century. Saint-Vincent wrote about them privately in 1625 and published his work in 1647, while Cavalieri published his in 1635 with a corrected version appearing in 1653. Cavalieri first used polar coordinates to solve a problem relating to the area within an Archimedean spiral. Blaise Pascal subsequently used polar coordinates to calculate the length of parabolic arcs.

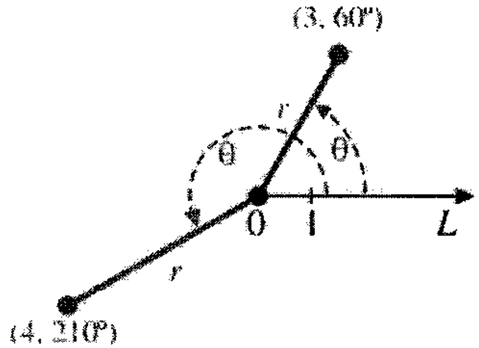
In *Method of Fluxions* (written 1671, published 1736), Sir Isaac Newton examined the transformations between polar coordinates, which he referred to as the "Seventh Manner; For Spirals", and nine other coordinate systems.[4] In the journal *Acta Eruditorum* (1691), Jacob Bernoulli used a system with a point on a line, called the *pole* and *polar axis* respectively. Coordinates were specified by the distance from the pole and the angle from the *polar axis*. Bernoulli's work extended to finding the radius of curvature of curves expressed in these

coordinates.

The actual term *polar coordinates* has been attributed to Gregorio Fontana and was used by 18th-century Italian writers. The term appeared in English in George Peacock's 1816 translation of Lacroix's *Differential and Integral Calculus*.[5][6] Alexis Clairaut was the first to think of polar coordinates in three dimensions, and Leonhard Euler was the first to actually develop them.[3]

Plotting points with polar coordinates

Each point in the polar coordinate system can be described with the two polar coordinates, which are usually called r (the radial coordinate) and θ (the angular coordinate, polar angle, or azimuth angle, sometimes represented as φ or t). The r coordinate represents the radial distance from the pole, and the θ coordinate represents the anticlockwise (counterclockwise) angle from the 0° ray (sometimes called the polar axis), known as the positive x-axis on the Cartesian coordinate plane.[1]



The points (3,60°) and (4,210°) on a polar coordinate system

For example, the polar coordinates (3, 60°) would be plotted as a point 3 units from the pole on the 60° ray. The coordinates (−3, 240°) would also be plotted at this point because a negative radial distance is measured as a positive distance on the opposite ray (the ray reflected about the origin, which differs from the original ray by 180°).

One important aspect of the polar coordinate system, not present in the Cartesian coordinate system, is that a single point can be expressed with an infinite number of different coordinates. This is because any number of multiple revolutions can be made around the central pole without affecting the actual location of the point plotted. In general, the point (r, θ) can be represented as $(r, \theta \pm n\times360°)$ or $(-r, \theta \pm (2n + 1)180°)$, where n is any integer.[7]

The arbitrary coordinates $(0, \theta)$ are conventionally used to represent the pole, as regardless of the θ coordinate, a point with radius 0 will always be on the pole.[8] To get a unique representation of a point, it is usual to limit r to non-negative numbers $r \geq 0$ and θ to the interval [0, 360°) or (−180°, 180°] (or, in radian measure, $[0, 2\pi)$ or $(-\pi, \pi]$).[9]

Angles in polar notation are generally expressed in either degrees or radians, using the conversion 2π rad = 360°. The choice depends largely on the context. Navigation applications use degree measure, while some physics applications (specifically rotational mechanics) and almost all mathematical literature on calculus use radian measure.[10]

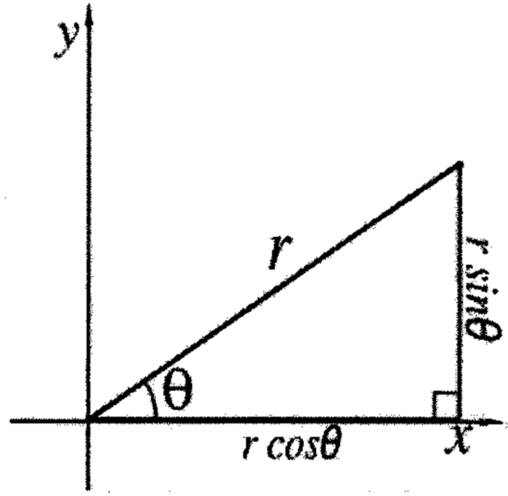
Converting between polar and Cartesian coordinates

The two polar coordinates r and θ can be converted to the Cartesian coordinates x and y by using the trigonometric functions sine and cosine:

$$x = r\cos\theta$$
$$y = r\sin\theta,$$

while the two Cartesian coordinates x and y can be converted to polar coordinate r by

$r^2 = y^2 + x^2$(by a simple application of the Pythagorean theorem).



A diagram illustrating the relationship between polar and Cartesian coordinates.

To determine the angular coordinate θ, the following two ideas must be considered:

- For $r = 0$, θ can be set to any real value.
- For $r \neq 0$, to get a unique representation for θ, it must be limited to an interval of size 2π. Conventional choices for such an interval are $[0, 2\pi)$ and $(-\pi, \pi]$.

To obtain θ in the interval $[0, 2\pi)$, the following may be used (arctan denotes the inverse of the tangent function):

$$\theta = \begin{cases} \arctan(\frac{y}{x}) & \text{if } x > 0 \text{ and } y \geq 0 \\ \arctan(\frac{y}{x}) + 2\pi & \text{if } x > 0 \text{ and } y < 0 \\ \arctan(\frac{y}{x}) + \pi & \text{if } x < 0 \\ \frac{\pi}{2} & \text{if } x = 0 \text{ and } y > 0 \\ \frac{3\pi}{2} & \text{if } x = 0 \text{ and } y < 0 \end{cases}$$

To obtain θ in the interval $(-\pi, \pi]$, the following may be used:[11]

$$\theta = \begin{cases} \arctan(\frac{y}{x}) & \text{if } x > 0 \\ \arctan(\frac{y}{x}) + \pi & \text{if } x < 0 \text{ and } y \geq 0 \\ \arctan(\frac{y}{x}) - \pi & \text{if } x < 0 \text{ and } y < 0 \\ \frac{\pi}{2} & \text{if } x = 0 \text{ and } y > 0 \\ -\frac{\pi}{2} & \text{if } x = 0 \text{ and } y < 0 \end{cases}$$

Many modern programming languages avoid having to keep track of the numerator and denominator signs through the implementation of the atan2 function, which has separate arguments for the numerator and the denominator.

Polar equations

The equation defining an algebraic curve expressed in polar coordinates is known as a *polar equation*. In many cases, such an equation can simply be specified by defining r as a function of θ. The resulting curve then consists of points of the form $(r(\theta), \theta)$ and can be regarded as the graph of the polar function r.

Different forms of symmetry can be deduced from the equation of a polar function r. If $r(-\theta) = r(\theta)$ the curve will be symmetrical about the horizontal (0°/180°) ray, if $r(\pi-\theta) = r(\theta)$ it will be symmetric about the vertical (90°/270°) ray, and if $r(\theta-\alpha°) = r(\theta)$ it will be rotationally symmetric $\alpha°$ counterclockwise about the pole.

Because of the circular nature of the polar coordinate system, many curves can be described by a rather simple polar equation, whereas their Cartesian form is much more intricate. Among the best known of these curves are the polar rose, Archimedean spiral, lemniscate, limaçon, and cardioid.

For the circle, line, and polar rose below, it is understood that there are no restrictions on the domain and range of the curve.

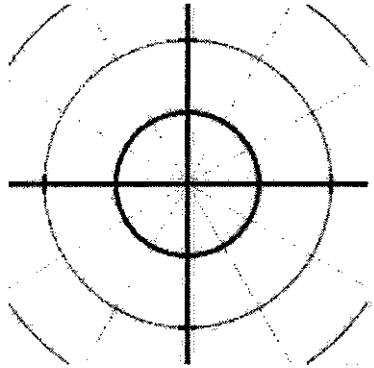
Circle

The general equation for a circle with a center at (r_0, φ) and radius a is

$$r^2 - 2rr_0\cos(\theta - \varphi) + r_0^2 = a^2.$$

This can be simplified in various ways, to conform to more specific cases, such as the equation

$$r(\theta) = a$$



A circle with equation $r(\theta) = 1$

for a circle with a center at the pole and radius a.[12]

Line

Radial lines (those running through the pole) are represented by the equation

$$\theta = \varphi,$$

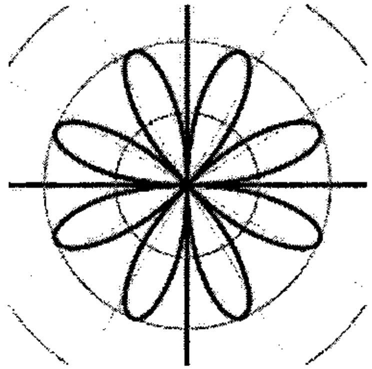
where φ is the angle of elevation of the line; that is, φ = arctan *m* where *m* is the slope of the line in the Cartesian coordinate system. The non-radial line that crosses the radial line θ = φ perpendicularly at the point (r_0, φ) has the equation

$$r(\theta) = r_0 \sec(\theta - \varphi).$$

Polar rose

A polar rose is a famous mathematical curve that looks like a petalled flower, and that can be expressed as a simple polar equation,

$$r(\theta) = a\cos(k\theta + \phi_0)$$

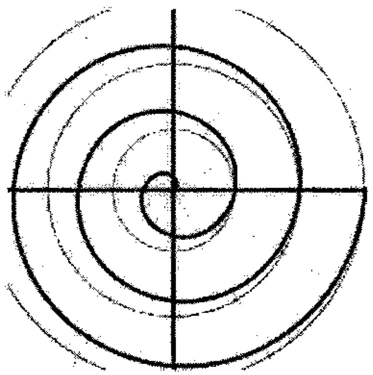


A polar rose with equation $r(\theta) = 2 \sin 4\theta$

for any constant φ_0 (including 0). If *k* is an integer, these equations will produce a *k*-petalled rose if *k* is odd, or a 2*k*-petalled rose if *k* is even. If *k* is rational but not an integer, a rose-like shape may form but with overlapping petals. Note that these equations never define a rose with 2, 6, 10, 14, etc. petals. The variable *a* represents the length of the petals of the rose.

Archimedean spiral

The Archimedean spiral is a famous spiral that was discovered by Archimedes, which also can be expressed as a simple polar equation. It is represented by the equation



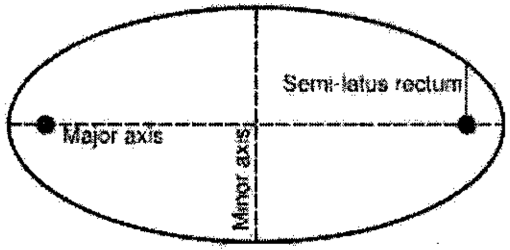
One arm of an Archimedean spiral with equation $r(\theta) = \theta$ for $0 < \theta < 6\pi$

Changing the parameter a will turn the spiral, while b controls the distance between the arms, which for a given spiral is always constant. The Archimedean spiral has two arms, one for $\theta > 0$ and one for $\theta < 0$. The two arms are smoothly connected at the pole. Taking the mirror image of one arm across the 90°/270° line will yield the other arm. This curve is notable as one of the first curves, after the conic sections, to be described in a mathematical treatise, and as being a prime example of a curve that is best defined by a polar equation.

Conic sections

A conic section with one focus on the pole and the other somewhere on the 0° ray (so that the conic's major axis lies along the polar axis) is given by:

$$r = \frac{\ell}{1 + e\cos\theta}$$



Ellipse, showing semi-latus rectum

where e is the eccentricity and ℓ is the semi-latus rectum (the perpendicular distance at a focus from the major axis to the curve). If $e > 1$, this equation defines a hyperbola; if $e = 1$, it defines a parabola; and if $e < 1$, it defines an ellipse. The special case $e = 0$ of the latter results in a circle of radius ℓ.

Complex numbers

Every complex number can be represented as a point in the complex plane, and can therefore be expressed by specifying either the point's Cartesian coordinates (called rectangular or Cartesian form) or the point's polar coordinates (called polar form). The complex number z can

be represented in rectangular form as

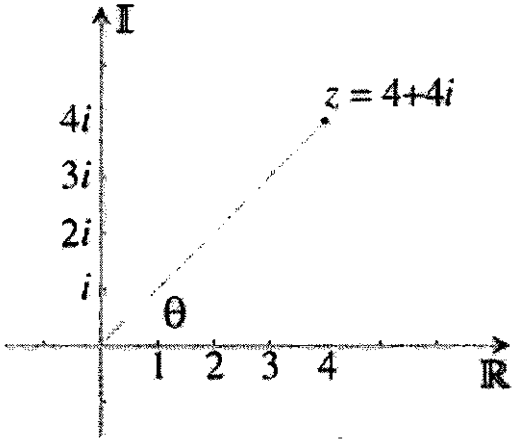
$$z = x + iy$$

where i is the imaginary unit, or can alternatively be written in polar form (via the conversion formulae given above) as

$$z = r \cdot (\cos\theta + i\sin\theta)$$

and from there as

$$z = re^{i\theta}$$



An illustration of a complex number *z* plotted on the complex plane

where e is Euler's number, which are equivalent as shown by Euler's formula.[13] (Note that this formula, like all those involving exponentials of angles, assumes that the angle θ is expressed in radians.) To convert between the rectangular and polar forms of a complex number, the conversion formulae given above can be used.

For the operations of multiplication, division, and exponentiation of complex numbers, it is generally much simpler to work with complex numbers expressed in polar form rather than rectangular form. From the laws of exponentiation:

- Multiplication:

$$r_0 e^{i\theta_0} \cdot r_1 e^{i\theta_1} = r_0 r_1 e^{i(\theta_0+\theta_1)}$$

- Division:

$$\frac{r_0 e^{i\theta_0}}{r_1 e^{i\theta_1}} = \frac{r_0}{r_1} e^{i(\theta_0-\theta_1)}$$

- Exponentiation (De Moivre's formula):

$$(re^{i\theta})^n = r^n e^{in\theta}$$

Calculus

Calculus can be applied to equations expressed in polar coordinates.[14][15]

The angular coordinate θ is expressed in radians throughout this section, which is the conventional choice when doing calculus.

Differential calculus

We have the following formulas:

$$r\frac{\partial}{\partial r} = x\frac{\partial}{\partial x} + y\frac{\partial}{\partial y}$$
$$\frac{\partial}{\partial \theta} = -y\frac{\partial}{\partial x} + x\frac{\partial}{\partial y}.$$

To find the Cartesian slope of the tangent line to a polar curve $r(\theta)$ at any given point, the curve is first expressed as a system of parametric equations.

$$x = r(\theta)\cos\theta$$

$$y = r(\theta)\sin\theta$$

Differentiating both equations with respect to θ yields

$$\frac{dx}{d\theta} = r'(\theta)\cos\theta - r(\theta)\sin\theta$$

$$\frac{dy}{d\theta} = r'(\theta)\sin\theta + r(\theta)\cos\theta.$$

Dividing the second equation by the first yields the Cartesian slope of the tangent line to the curve at the point $(r, r(\theta))$:

$$\frac{dy}{dx} = \frac{r'(\theta)\sin\theta + r(\theta)\cos\theta}{r'(\theta)\cos\theta - r(\theta)\sin\theta}.$$

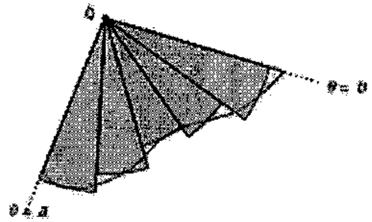
Integral calculus

Let R denote the region enclosed by a curve $r(\theta)$ and the rays $\theta = a$ and $\theta = b$, where $0 < b - a < 2\pi$. Then, the area of R is

$$\frac{1}{2}\int_a^b r(\theta)^2\, d\theta.$$

The integration region R is bounded by the curve $r(\theta)$ and the rays $\theta = a$ and $\theta = b$.

This result can be found as follows. First, the interval $[a, b]$ is divided into n subintervals, where n is an arbitrary positive integer. Thus $\Delta\theta$, the length of each subinterval, is equal to $b - a$ (the total length of the interval), divided by n, the number of subintervals. For each subinterval $i = 1, 2, \ldots, n$, let θ_i be the midpoint of the subinterval, and construct a sector with the center at the pole, radius $r(\theta_i)$, central angle $\Delta\theta$ and arc length $r(\theta_i)\Delta\theta$. The area of each constructed sector is therefore equal to $\frac{1}{2}r(\theta_i)^2\Delta\theta$. Hence, the total area of all of the sectors is



The region R is approximated by n sectors (here, $n = 5$).

$$\sum_{i=1}^{n} \tfrac{1}{2} r(\theta_i)^2\, \Delta\theta.$$

As the number of subintervals n is increased, the approximation of the area continues to improve. In the limit as $n \to \infty$, the sum becomes the Riemann sum for the above integral.

Generalization

Using Cartesian coordinates, an infinitesimal area element can be calculated as $dA = dx\, dy$. The substitution rule for multiple integrals states that, when using other coordinates, the Jacobian determinant of the coordinate conversion formula has to be considered:

$$J = \det\frac{\partial(x,y)}{\partial(r,\theta)} = \begin{vmatrix} \frac{\partial x}{\partial r} & \frac{\partial x}{\partial \theta} \\ \frac{\partial y}{\partial r} & \frac{\partial y}{\partial \theta} \end{vmatrix} = \begin{vmatrix} \cos\theta & -r\sin\theta \\ \sin\theta & r\cos\theta \end{vmatrix} = r\cos^2\theta + r\sin^2\theta = r.$$

Hence, an area element in polar coordinates can be written as

$$dA = J\, dr\, d\theta = r\, dr\, d\theta.$$

Now, a function that is given in polar coordinates can be integrated as follows:

Here, R is the same region as above, namely, the region enclosed by a curve $r(\theta)$ and the rays $\theta = a$ and $\theta = b$.

The formula for the area of R mentioned above is retrieved by taking f identically equal to 1. A more surprising application of this result yields the Gaussian integral

$$\int_{-\infty}^{\infty} e^{-x^2}\, dx = \sqrt{\pi}.$$

Vector calculus

Vector calculus can also be applied to polar coordinates. Let $\mathbf{r}$ be the position vector $(r\cos(\theta), r\sin(\theta))$, with r and θ depending on time t.

Using the unit vectors

$$\hat{\mathbf{r}} = (\cos(\theta), \sin(\theta))$$

in the direction of $\mathbf{r}$ and

$$\hat{\boldsymbol{\theta}} = (-\sin(\theta), \cos(\theta))$$

at right angle to $\mathbf{r}$ the first and second derivatives of position are:

$$\frac{d\mathbf{r}}{dt} = \dot{r}\hat{\mathbf{r}} + r\dot{\theta}\hat{\boldsymbol{\theta}},$$

$$\frac{d^2\mathbf{r}}{dt^2} = (\ddot{r} - r\dot{\theta}^2)\hat{\mathbf{r}} + (r\ddot{\theta} + 2\dot{r}\dot{\theta})\hat{\boldsymbol{\theta}} = (\ddot{r} - r\dot{\theta}^2)\hat{\mathbf{r}} + \frac{1}{r}\quad \overbrace{r^2\dot{\theta}}^{\cdot}\quad \hat{\boldsymbol{\theta}}$$

Centrifugal and Coriolis terms

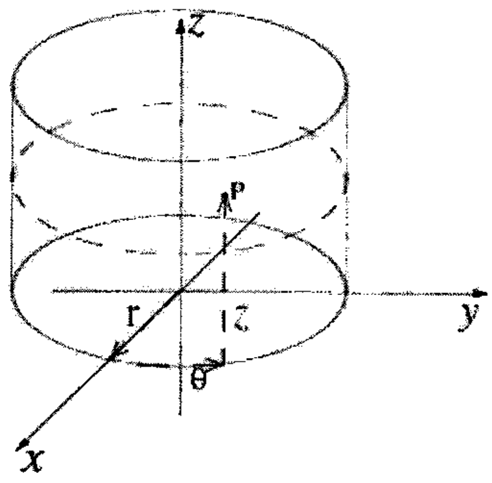
The term $r\dot{\theta}^2$ is sometimes referred to as the *centrifugal term*, and the term $2\dot{r}\dot{\theta}$ as the *Coriolis term*. Although these equations bear some resemblance *in form* to the centrifugal and Coriolis effects found in rotating reference frames, nonetheless there is no physical connection. For example, the physical centrifugal and Coriolis forces appear only in non-inertial frames of reference. In contrast, these terms that appear when acceleration is expressed in polar coordinates are a *mathematical consequence of differentiation*; these terms appear wherever polar coordinates are used. In particular, these terms appear even when polar coordinates are used in inertial frames of reference, where the physical centrifugal and Coriolis forces *never* appear. Moreover, for general motion of a particle (as opposed to simple circular motion), there is no simple relation between these terms and the physical forces that appear to exist in the frame of motion of the particle itself: the centrifugal and Coriolis forces in the particle's frame of reference must be referred to the instantaneous osculating circle of its motion, not to a fixed center of polar coordinates. For more detail, see centripetal force.

Three dimensions

The polar coordinate system is extended into three dimensions with two different coordinate systems, the cylindrical and spherical coordinate systems, both of which include two-dimensional or planar polar coordinates as a subset. In essence, the cylindrical coordinate system extends polar coordinates by adding an additional distance coordinate, while the spherical system instead adds an additional angular coordinate.

Cylindrical coordinates

The *cylindrical coordinate system* is a coordinate system that essentially extends the two-dimensional polar coordinate system by adding a third coordinate measuring the height of a point above the plane, similar to the way in which the Cartesian coordinate system is extended into three dimensions. The third coordinate is usually denoted *h*, making the three cylindrical coordinates (*r*, θ, *h*).



A point plotted with cylindrical

The three cylindrical coordinates can be converted to Cartesian coordinates by

$$x = r\cos\theta$$
$$y = r\sin\theta$$
$$z = h.$$

Spherical coordinates

Polar coordinates can also be extended into three dimensions using the coordinates (ρ, φ, θ), where ρ is the distance from the origin, φ is the angle from the z-axis (called the colatitude or zenith and measured from 0 to 180°) and θ is the angle from the x-axis (as in the polar coordinates). This coordinate system, called the *spherical coordinate system*, is similar to the latitude and longitude system used for Earth, with the origin in the centre of Earth, the latitude δ being the complement of φ, determined by δ = 90° − φ, and the longitude *l* being measured by *l* = θ − 180°.[16]

coordinates

The three spherical coordinates are converted to Cartesian coordinates by

$$x = \rho \sin\varphi \cos\theta$$
$$y = \rho \sin\varphi \sin\theta$$
$$z = \rho \cos\varphi.$$

Applications

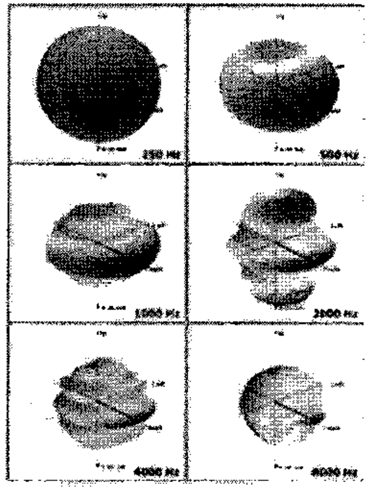
Polar coordinates are two-dimensional and thus they can be used only where point positions lie on a single two-dimensional plane. They are most appropriate in any context where the phenomenon being considered is inherently tied to direction and length from a center point. For instance, the examples above show how elementary polar equations suffice to define curves — such as the Archimedean spiral — whose equation in the Cartesian coordinate system would be much more intricate. Moreover, many physical systems — such as those concerned with bodies moving around a central point or with phenomena originating from a central point — are simpler and more intuitive to model using polar coordinates. The initial motivation for the introduction of the polar system was the study of circular and orbital motion.

Position and navigation

Polar coordinates are used often in navigation, as the destination or direction of travel can be given as an angle and distance from the object being considered. For instance, aircraft use a slightly modified version of the polar coordinates for navigation. In this system, the one generally used for any sort of navigation, the 0° ray is generally called heading 360, and the angles continue in a clockwise direction, rather than counterclockwise, as in the mathematical system. Heading 360 corresponds to magnetic north, while headings 90, 180, and 270 correspond to magnetic east, south, and west, respectively.[17] Thus, an aircraft traveling 5 nautical miles due east will be traveling 5 units at heading 90 (read niner-zero by air traffic control).[18]

Modeling

Systems displaying radial symmetry provide natural settings for the polar coordinate system, with the central point acting as the pole. A prime example of this usage is the groundwater flow equation when applied to radially symmetric wells. Systems with a radial force are also good candidates for the use of the polar coordinate system. These systems include gravitational fields, which obey the inverse-square law, as well as systems with point sources, such as radio antennas.



The output pattern of an industrial loudspeaker shown using spherical polar plots taken at six frequencies

Radially asymmetric systems may also be modeled with polar coordinates. For example, a microphone's pickup pattern illustrates its proportional response to an incoming sound from a given direction, and these patterns can be represented as polar curves. The curve for a standard cardioid microphone, the most common unidirectional microphone, can be represented as $r = 0.5 + 0.5 \sin \theta$ at its target design frequency.[19] The pattern shifts toward omnidirectionality at lower frequencies.

Three dimensional modeling of loudspeaker output patterns can be used to predict their performance. A number of polar plots are required, taken at a wide selection of frequencies, as the pattern changes greatly with frequency. Polar plots help to show that many loudspeakers tend toward omnidirectionality at lower frequencies.

See also

- List of canonical coordinate transformations

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General

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Specific

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Hidden categories: All articles with unsourced statements | Articles with unsourced statements since August 2008

EXHIBIT M

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE

MCKESSON AUTOMATION, INC.,	)	
	)	
Plaintiff,	)	
	)	
v.	)	C.A. No. 06-28 (SLR/LPS)
	)	
SWISSLOG ITALIA S.P.A. and TRANSLOGIC CORPORATION,	)	
	)	
	)	
Defendants.	)	

SECOND REVISED JOINT CLAIM CONSTRUCTION STATEMENT

Pursuant to Magistrate Stark's Order in this case, dated June 5, 2008, Plaintiff and Defendants submit the following list of agreed upon and disputed claim terms or phrases appearing in the asserted claims of U.S. Patent Nos. 5,468,110 ("the '110 patent), and the 5,593,267 ("the '267 patent"). The parties agree that all claim terms not identified herein are not in dispute and, therefore, do not require construction. By proposing constructions for claim terms, agreeing with Plaintiff on constructions of claim terms, and/or accepting constructions of claim terms proposed by Plaintiff, Defendants do not waive and reserve all rights with respect to any invalidity contention outlined in Defendants' Fourth Revised Prior Art and Invalidity Statement, except that Defendants agree not to base any invalidity contention under 35 U.S.C. section 112 on the language of a construction of a claim term that was previously proposed by Plaintiff and accepted herein by Defendants.

The parties filed their Joint Claim Construction Statement previously on June 16, 2008. Defendants believe that the recent Federal Circuit case of *O2 Micro Int'l Ltd. v. Beyond Innovation Tech. Co. Ltd.*, 521 F.3d 1351 (Fed. Cir. April, 2008), attached hereto as Exhibit A, requires a Court to construe a disputed term even if the Court believes that the term should be

given its plain and ordinary meaning. For this reason, the parties have revised their constructions herein to provide the plain and ordinary meaning construction of terms that are in dispute and which were identified previously by at least one party as not requiring construction.

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September 2, 2008

U.S. PATENT NO 5,468,110

CLAIM TERM	CLAIM	AGREED UPON CONSTRUCTION
package holding means	1, 8	The disclosed function is the holding of packages. The corresponding structures are the rods, brackets, shelves and dividers as disclosed at positions 30, 25, 29 and 31 of, e.g., FIG. 3-6, and col. 5, lines 10-19 and 25-40.
means for moving the automated picking means to selected storage locations	1	The disclosed function is moving the automated picking means to the selected storage locations. The corresponding structure is a vehicle that travels over a track, and is driven by a drive system including a motor, as disclosed at col. 5, line 49 – col. 6, line 2 and Fig. 6.
means for moving the picking means over the track	22	The disclosed function is moving the picking means over the track. The corresponding structure is the drive system including a motor disclosed at col. 5, line 52-55 and FIG. 6.

CLAIM TERM	CLAIM	PLAINTIFF'S PROPOSED CONSTRUCTION	DEFENDANTS' PROPOSED CONSTRUCTION
x,y coordinate/ x,y coordinate location	1, 8	one or more points that designates the position of a package where the picking means selects, grabs and replaces packages.[1]	plain and ordinary meaning – *i.e.*, a location identifier "X,Y," in which X designates a position of the location along an X-Axis and Y designates a position of the location along a Y-Axis.[2]

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[1] During the meet and confer on June 12-13, 2008 regarding the Joint Claim Construction Statement, Plaintiff informed Defendants of its intention to remove two instances of the term "in a plane" from its construction of "x,y coordinate" and "x,y coordinate location." Defendants object to Plaintiff's change in construction of these terms at this juncture and after initial and rebuttal reports of the parties' technical experts have been served. Defendants have informed Plaintiff that they would also object to any attempt by Plaintiff to serve revised technical reports addressing these new constructions.

[2] On August 28, 2008 Defendants informed Plaintiff of their intention to add the term "X,Y" after the word "identifier" to their construction of the claim term "x,y coordinate" and "x,y coordinate location." Plaintiff objects to Defendants' change in construction of these terms after the close of expert discovery and the filing of the initial claim construction briefs. Plaintiff will also object to any attempts by Defendants to serve revised technical expert reports based on these new constructions.

CLAIM TERM	CLAIM	PLAINTIFF'S PROPOSED CONSTRUCTION	DEFENDANTS' PROPOSED CONSTRUCTION
picking means/automated picking means	1	The disclosed function is to hold packages and to select and place packages in the storage area locations. The corresponding structure is a device that includes a housing, a gripper, an extension rod and a storing rod as disclosed at col. 7, lines 57-64 and Fig. 7.	Function: "to hold packages, to select packages from the storage area locations and place packages in the storage area locations in accordance with computer controlled instructions" Corresponding Structure: picking means 38
package reader associated with the picking means	1	a device that provides the identity of a package to the computer directing the picking means	a package reader attached to the picking means

U.S. PATENT NO 5,593,267

CLAIM TERM	CLAIM	AGREED UPON CONSTRUCTION
means for moving the column with respect to the row	3	The disclosed function is the moving of the column with respect to the row. The corresponding structure is the drive system including a motor, as disclosed at col. 5, line 52 – col. 6, line 5 and FIG. 6.
means for storing a plurality of medicine packages/means for storing packages	4, 7	The disclosed function is the storing of a plurality of medicine packages. The corresponding structure is a storage rod as disclosed at col. 8, lines 18-23 and Figs. 7-11.
identifying means	4	The disclosed function is the identification of a package. The corresponding structure is the bar code reader as disclosed at col. 5, line 66 – col. 6, line 18.
means for producing a suction	7	The disclosed function is the production of a suction. The corresponding structure is the vacuum generator as disclosed at col. 7, line 48 – col. 8, line 7 and FIG. 11.
means for sensing when a package is properly positioned	7	The disclosed function is the sensing of a package. The corresponding structure is the vacuum sensor as disclosed at col. 7, line 48 – col. 8, line 18 and FIG. 11.

CLAIM TERM	CLAIM	PLAINTIFF'S PROPOSED CONSTRUCTION	DEFENDANTS' PROPOSED CONSTRUCTION
x, y coordinate location/x and y coordinate	1, 7	one or more points that designates the position of a package where the picking means selects, grabs and replaces packages.[3]	plain and ordinary meaning – *i.e.*, a location identifier "X,Y," in which X designates a position of the location along an X-Axis and Y designates a position of the location along a Y-Axis.[4]
means for picking medicine packages from the support rods	1	The disclosed function is the picking of medicine packages from the support rods. The corresponding structure is a device that includes a housing, a gripper, an extension rod, and a storing rod as disclosed at col. 7, lines 57-64 and Fig. 7.	Function: "picking medicine packages from the support rods in accordance with instructions received from a computer" Corresponding Structure: Picking means 38
means for obtaining a medicine package/obtaining means	4	The disclosed function is the obtaining of a medicine package. The corresponding structure is a device including a suction head, vacuum generator and an extension rod as disclosed at col. 7, line 60 – col. 8, line 33 and FIGS. 7 and 11.	Function: "obtaining a medicine package" Corresponding Structure: obtaining means 50

[3] During the meet and confer on June 12-13, 2008 regarding the Joint Claim Construction Statement, Plaintiff informed Defendants of its intention to remove two instances of the term "in a plane" from its construction of "x,y coordinate location" and "x and y coordinate." Defendants object to Plaintiff's change in construction of these terms at this juncture and after initial and rebuttal reports of the parties' technical experts have been served. Defendants have informed Plaintiff that they would also object to any attempt by Plaintiff to serve revised technical reports addressing these new constructions.

[4] On August 28, 2008 Defendants informed Plaintiff of their intention to add the term "X,Y" after the word "identifier" to their construction of the claim term "x,y coordinate location" and "x and y coordinate." Plaintiff objects to Defendants' change in construction of these terms after the close of expert discovery and the filing of the initial claim construction briefs. Plaintiff will also object to any attempts by Defendants to serve revised technical expert reports based on these new constructions.

CLAIM TERM	CLAIM	PLAINTIFF'S PROPOSED CONSTRUCTION	DEFENDANTS' PROPOSED CONSTRUCTION
picking means for picking packages from the support rods in accordance with instructions received from a computer	7	112 ¶6 construction not required. Plain and ordinary meaning – *i.e.*, a device having a housing, means for storing packages, means for producing a suction, a suction rod, and a means for sensing.	Function: "picking packages from the support rods in accordance with instructions received from a computer" Corresponding Structure: picking means 38.

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CERTIFICATE OF SERVICE

I, the undersigned, hereby certify that on September 2, 2008 I electronically filed the foregoing with the Clerk of the Court using CM/ECF which will send notification of such filing to the following:

Dale R. Dubé, Esquire
Blank Rome LLP

Additionally, I hereby certify that true and correct copies of the foregoing were caused to be served on September 2, 2008 upon the following individuals in the manner indicated

BY E-MAIL

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